REMARKS

Applicant intends this response to be a complete response to the Examiner's 2 **November 2006** Non-Final Office Action. Applicant has labeled the paragraphs in his response to correspond to the paragraph labeling in the Office Action for the convenience of the Examiner.

DETAILED ACTION

Claims

1. Claims 37-38, 74-117 are pending in the application. Claims 37-38, 74-75 and 101-117 are withdrawn.

Withdrawn Rejections

2. The 35 U.S.C. 112, second paragraph rejections of claims 1-22, 53-60 and 65-70 of record in the Office Action mailed 30 May 2006, page 2, paragraph 2, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
3. The 35 U.S.C. 102(b) rejections of claims 1-2, 10, 12-13, 19-20, 57 and 66 as being anticipated by Britton (US 4,454,184) of record in the Office Action mailed 30 May 2006, page 4, paragraph 4, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
4. The 35 U.S.C. 102(b) rejections of claims 1-2, 10, 13-14, 18-20, 57, 66 and 70 as being anticipated by Lappala (US 2,851,389) of record in the Office Action mailed 30 May 2006, page 7, paragraph 5, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
5. The 35 U.S.C. 103(a) rejections of claims 4-7, 21, 53-56, 58-59 and 68 as being obvious over Lappala (US 2,851,389) of record in the Office Action mailed 30 May 2006, page 10, paragraph 6, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
6. The 35 U.S.C. 103(a) rejections of claims 3, 58 and 67-69 as being obvious over Lappala (US 2,851,389) (or Britton (US 4,454,184), with regards to claims 3, 67 and 69), as applied to claim 1, in view of Johnston (US 3,340,128) of record in the Office Action mailed 30 May 2006, page 12, paragraph 7, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
7. The 35 U.S.C. 103(a) rejections of claim 15 as being obvious over Lappala (US 2,851,389) (or Britton (US 4,454,184), as applied to claim 1, in view of Velazquez (US 5,614,297) and Cederblad et at. (US 6,204,207) of record in the Office Action mailed 30 May 2006, page 14, paragraph 8, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
8. The 35 U.S.C. 103(a) rejections of claims 22 and 60 as being obvious over Lappala (US 2,851,389) or Britton (US 4,454,184), as applied to claim 1, in view of Cederblad et al. (US 6,204,207) of record in the Office Action mailed 30 May 2006, page 15, paragraph 9, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.
9. The 35 U.S.C. 103(a) rejections of claim 65 as being obvious over Lappala (US 2,851,389) or Britton (US 4,454,184), as applied to claim 1, in view of Bonke et at. (US 6,299,966) of record in the Office Action mailed 30 May 2006, page 16, paragraph 10, have been withdrawn due to Applicant's amendments in the Paper filed 10 October 2006.

Specification

10. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

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(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention,
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(I) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Applicant is advised to write all section headings in capital letters and insert any section headings where applicable, such as "BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)" on page 24 of Applicant's Specification.

New Objections

11. **Claims 77, 94, 95 and 98** stand objected to because of the following informalities: the claims depend on cancelled claim 1, perhaps Applicant meant claim 76. Appropriate correction is required.

Applicant has amended **Claims 77, 94, 95 and 98** to overcome these objection and respectfully request withdrawal of same.

NEW REJECTIONS

Claim Rejections - 35 USC § 112

12. **Claims 76-100** stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner contends as follows:

> The phrase "unbalanced biaxial molecular orientation" in claim 76, lines 4-5 is vague and indefinite because it is unclear what is the difference between biaxial molecular orientation and unbalanced biaxial molecular orientation.

Applicant disagree the Examiner. The term unbalanced biaxial molecular orientation is described in sufficient detail to enable one of ordinary skill in the art. Uniaxial molecular orientation means that the film is oriented in a single direction. Biaxial molecular orientation means that the film is oriented in two directions. But the specification requires a dominate direction, but the biaxial molecular orientation must be unbalanced, otherwise there would not be a major direction to orient the strands. Applicant, therefore, respectfully requests withdrawn of this rejection.

The Examiner contends as follows:

> The phrase "in sufficient amount and/or coloration" in claim 78, line 3 is vague and indefinite because to one of ordinary what amount is sufficient and what is the basis of determining when an amount is sufficient. Furthermore, it is unclear how it is possible for there to be "coloration material in sufficient amount and coloration to render" when the term "and" is used as opposed to the term "or".

Applicant has amended claim 78 to remove this objection. Applicant has clarified the claims to read that the sufficiency can be in amount, coloration or amount and coloration. Applicant, therefore, respectfully requests withdrawn of this rejection.

The Examiner contends as follows:

> The phrase "general thickness" in claim 97, line 1 is vague and indefinite because it is unclear what is the difference between "general thickness" and "thickness".

Applicant has amended the claim 97 to remove the word general. Applicant, therefore, respectfully requests withdrawn of this rejection.

The Examiner contends as follows:

> Claim 97 recites the limitation "A-side" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Applicant has amended the claim 97 to remove the antecedent basis problem. Applicant, therefore, respectfully requests withdrawn of this rejection.

Claim Rejections - 35 USC § 103

13. **Claims 76-77, 83-85, 88-89, 93 and 96** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Britton (US 4,454,184) in view of Rasmussen (US 4,039,364).

Claim 76

The Examiner contends as follows:

Regarding **claim 76,** Britton (184) teaches a cross-laminate (FIGs 4 and 8, #11a and #12a) comprising at least one pair of two adjacent films A and B which are laminated together in sandwich relation (col. 6, ll. 23-26, multiple layers 3, 4, 5 and 6)

with the main direction of orientation in film A crossing the main direction of orientation in film B (FIGs 4 and 1 wherein #11a, #12a, #13a and #14a cross each other), and

the films each comprises a continuous main layer consisting of a polymer material (See col. 2, 11. 42-47 and FIG-4, continuous films of adhesive above and below the strands.)

on at least the mutually facing sides of the main layers a first surface layer of a different polymer material (See col. 2, ll. 42-47)

and interposed between each first surface layer and its main layer a second surface layer of a different polymer material (FIG-1 and col. 2, ll. 45-58),

the first surface layer on the main layer of each of the films A and B being a discontinuous layer (See Fig-1 wherein the strands are not a solid sheet thus discontinuous in the direction between the strands and wherein the adhesive is not discontinuous between the strands.), consisting of at least one array of coextruded thin strands with strands in the arrays of the two films arranged in crossing relation to one another (FIGs 4 and 1 wherein the strands cross each other) and obviously teaches wherein the lamination strength is highest at the strand crossing points as it is well known that strand crossing points have stronger lamination strength than non crossing point areas (col. 3, ll. 1-19), however, fails to expressly teach wherein each of the films A and B having an uniaxial or biaxial molecular orientation.

Fig 1, Fig 4 and Fig 8 of US 4,454,184 were displayed

However, Rasmussen ('364) teaches wherein each of the films A and B having an uniaxial or biaxial molecular orientation (col. 6, /I. 1-5) for the purpose of producing durable tarps for heavy duty applications (col. 1, ll. 16-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to either uniaxially or biaxially orient the films as taught by Rasmussen (364) in Britton ('184) in order to provide durable tarps for heavy duty applications.

The phrase "**separately coextruded**" in claim 76, line 2, "**at least partially by heating**" in claim 76, line 3, "**coextruded**" in claim 76, line 14, claim 85, line 2 and "**continuous extrusion**" in claim 93, line 2 are **process limitations** in a product claim and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

The phrase "**selected to give high tensile strength**" in claim 76, line 8, "**the polymer material of said second surface layers being selected to control the lamination strength in the strand-free regions thereof and the polymer material**

of the strands being selected to control the lamination strength at the crossing points of the strand arrays" in claim 76, lines 16-20 are not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

Applicant firstly notes that Britton ('184) relates to "sheet material comprising a first layer having a plurality of aligned spaced apart strands **disposed in and completely surrounded by a mass of an adhesive**, a second layer having a plurality of aligned spaced apart strands **disposed in and completely surrounded by a mass of an adhesive**." Britton ('184) at claim 1 and at Col. 1, ll. 48-63 (emphasis added). Thus, the strands are not responsible for bonding, as they are **completely surrounded** by an adhesive. It is the adhesive surrounding the strands that is responsible for the bonding.

On the contrary, the present invention relates to strong adhesive bonds formed at *loci* of intersecting strands, the first bonding layer; one set of strands disposed on a surface of the film A and other set of strands disposed on an opposing surface of the film B. The bonds comprise point or spot bonds formed by melt bonding the strands at the intersecting *loci*. The cross-laminate of this invention also includes a second bonding layer that controls heat induced bonding between regions of the films A and B that are free of the stranded first bonding layer, where the second bonding layer is interposed between the films A and B and the stranded first bonding layers.

Britton ('184) simply disclosed no such structure. The Britton ('184) strands are completely surrounded or embedded in an adhesive material. The Britton structure simply does not support inter-strand bonding. In fact, Britton ('184) does not even suggest a laminate where the bonds are inter-strand bonding.

The addition of Rasmussen (US 4,039,364) does nothing to remove the deficiencies in Britton ('184). Although Rasmussen ('364) does disclose cross-laminates with uniaxially or biaxially oriented films, the combination of Britton ('184) and Rasmussen ('364) only gives rise to uniaxially or biaxially oriented films having fibers **disposed in and completely surrounded by a mass of an adhesive** as required by Britton ('184) and bonded through the adhesive.

Thus, the combination of Britton ('184) and Rasmussen ('364) does not disclose, teach or even suggest the laminates as currently claimed. Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 77

The Examiner contends as follows:

> Regarding **claim 77**, Britton ('184) teaches wherein the strands in the respective arrays are in contact with one another at their crossing points and are of a polymer such as to be directly laminated to each other at the crossing points (col. 3, l. 8 "spot welded" strands and col. 3, l. 17 "fused laminate').

Applicant repeats the arguments above regarding Britton ('184) here. Applicant further notes the language cited in Britton ('184), but the layer being spot welded or fuse laminated are the full layers, the strands are completing encased in adhesive and not just the fibers so that the spot welds or fusion points are in the adhesive surround in the fibers not in fibers. The machine is designed to operate with films and not with strings of fibers, which it would have to do in order for the bonding to occur between the fibers themselves at there intersections. This conclusion is further buttressed because the fibers are nylon type 126 having a melting temperature above 400°F, while the adhesive layers are PCV (176°F melting point), natural rubber curing at 220°F range or other adhesives. Moreover, nylon's fiber strength is adversely affected by melting. Because Britton ('184) is directed to coated fabric layers, the layer would be significantly weakened if the fibers themselves were bonded directly to each other at fiber intersections.

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claims 83 and 96

The Examiner contends as follows:

> Regarding **claims 83 and 96**, Britton ('184) obviously teaches wherein the lamination strength at the crossing points of the thin strands of the arrays is at least 40 g cm"' and a lamination strength in the strand-free regions of the cross-laminate is not more than 50% of the lamination strength at said crossing points of the strands thereof, as measured by a peel test carried out on narrow specimens of the cross-laminate at a velocity of about 1 mm sec-',and the lamination strength in the strand-free regions is at the highest 75% of the bonding strength between the strands at the crossing points, as measured by the peel test since a structure with an equivalent structure would also have the same lamination strength (col. 2, 11. 42-58).

Applicant repeats the arguments above regarding Britton ('184) here. While it is true that the lamination strength is as reported, the strength is due to adhesive bonding and not due to bonding at *loci* of intersection of facing stranded films. Again, the fibers in Britton ('184) are fully encased in adhesive, and all bond occurs in the adhesive coating and not at the fibers, which never touch.

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 84

The Examiner contends as follows:

> Regarding **claim 84**, Britton ('184) teaches wherein a cross-laminate comprising an assembly of a common film A having a main layer with a strand-formed first surface layer on both of its surfaces and a second continuous layer interposed between each the first surface layer and the main layer and two exterior films B each having on at least one of its sides a strand-formed first surface layer of each the exterior film B facing toward the common film A with the strands thereof bonded to the strands of the common film A (see col. 6, ll. 23-26 and FIG-1 wherein an additional layer such A with a strand is placed on top of the laminate).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the problem with Britton ('184) is that it does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 85

The Examiner contends as follows:

> Regarding **claim 85**, Britton ('184) teaches on at least one of its outer films, an exterior surface layer of a polymer material (col. 2, ll. 42-58).
>
> The phrase **"adapted to enhance a surface property of the laminate selected from its heat-sealing capability or its frictional properties"** in claim 85, lines 3-4 is not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

Applicant repeats the arguments above regarding Britton ('184) here. Regardless of the surface coating, Britton ('184) does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 88

The Examiner contends as follows:

> Regarding **claim 88**, Britton ('184) teaches wherein the second surface layer includes an adhesion modifying material (col: 2, 11. 42-58).
>
> The phrase **"to establish a blocking between the contacting mutually facing strand-free regions thereof"** in claim 88, lines 2-3 is not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

Applicant repeats the arguments above regarding Britton ('184) here. Regardless of the surface coating, Britton ('184) does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 89

The Examiner contends as follows:

> Regarding **claim 89**, Britton ('184) obviously teaches wherein the first surface layer on at least one of the films A and B comprises at least two of the arrays of strands, and the strands of the differing arrays being interspersed with one another as such material has a appearance depending upon how viewed or processed (col. 2, ll. 25-58).
>
> The phrase **"at least one of the two arrays being formed of a polymer material differing in appearance from another of the two arrays"** in claim 89, lines 4-5 is not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

Applicant repeats the arguments above regarding Britton ('184) here. Again, Britton ('184) does not disclose films have strands disposed on their surfaces. The Britton ('184) are fully surrounded by adhesive – coated – incapable of directly fiber-to-fiber or strand-to-strand bonding. Britton ('184) simply does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 93

The Examiner contends as follows:

> Regarding **claim 93**, Britton ('184) teaches a lamination layer introduced between the films A and B to laminate the films in the sandwich relation (see FIG-4).

Applicant repeats the arguments above regarding Britton ('184) here. Regardless of the lamination layer, Britton ('184) does not disclose, teach or suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

14. **Claim 78** stands rejected under 35 U.S.C. 103(a) as being unpatentable over Britton (US 4,454,184) in view of Rasmussen (US 4,039,364) and Johnston (US 3,340,128).

The Examiner contends as follows:

> Regarding **claim 78**, Britton (184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the polymer material of the strands of at least one of the arrays comprises coloration material in sufficient amount and/or coloration to render the strands visible through at least one side of the cross-laminate.
>
> However, Johnston ('128) teaches wherein the polymer material of the strands of at least one of the arrays comprises coloration material in sufficient amount and/or coloration to render the strands visible through at least one side of the cross-laminate (col. 24, I. 58) for the purpose of providing a decorative motif (col. 24, 11. 59-60).
>
> Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention was made to provide strands with coloration as taught by Johnston ('128) in Britton ('184) in order to provide a product having a decorative motif.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Johnston ('128) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

15. **Claims 79-82, 86, 90, 94-95, 97-98 and 100** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Britton (US 4,454,184) in view of Rasmussen (US 4,039,364) and Lappala (US 2,851,389).

Claim 79

The Examiner contends as follows:

> Regarding **claim 79**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however, fail to expressly disclose wherein the thickness of the strands in the first surface layer of each of the films A and B is not greater than 20% of the thickness of the respective film.

However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, I. 45, any suitable diameter can be used), which clearly changes the films/laminate ratio. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above thickness ratio as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, 11. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 80

The Examiner contends as follows:

Regarding **claim 80**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however, fail to expressly disclose wherein the collective area of the strands in each of the first surface layers constitutes not more than 60% of the area of the respective film side.

However, Lappala (389) teaches that any suitable diameter strand may be used (See col. 2, I. 45, any suitable diameter can be used), which clearly changes the above area ratio. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above area ratio as taught by Lappala (1389) for the purpose of providing a laminate that is light and strong (col. 1, 11. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections

of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 81

The Examiner contends as follows:

> Regarding **claim 81**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however, fail to expressly disclose wherein the thickness increase in each of the films A and B at the locations where the strands are present is at most 20% of the film thickness in adjacent strand-free regions thereof.
>
> However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the thickness increase. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above thickness increase as taught by Lappala (389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 82 and 100

The Examiner contends as follows:

> Regarding **claims 82 and 100**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the distance from the center-to-center of adjacent pairs of strands in each array is between 2 mm and 40 mm (not greater than 20 mm).
>
> However, Lappala ('389) teaches that any suitable pattern may be used (See col. 2, l. 49-51, any suitable pattern) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a suitable pattern that provides the above separation as taught by Lappala ('389) in Britton ('184) in order to provide a laminate that is light and strong.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 86

The Examiner contends as follows:

Regarding **claim 86,** Britton (`184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the main layer of each of the two films A and B consists essentially of polyethylene or polypropylene.

However, Lappala (4389) teaches wherein the main layer of each of the two films A and B consists essentially of polyethylene (col. 2, I. 31 and 11. 66-67) for the purpose of providing a laminate that is light and strong (col. 1, 11. 25-28).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to have layers comprising polyethylene as taught by Lappala ('389) in Britton ('184) in order to provide a laminate that is light and strong.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 90

The Examiner contends as follows:

> Regarding **claim 90**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the first surface layer on each of the films A and B constitutes at the highest 10% of the volume of the corresponding film.
>
> However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the volume. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above volume as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 94

The Examiner contends as follows:

> Regarding **claim 94**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the thickness of the strands in the first surface layer of each of the films A and B is not greater than 10% of the thickness of the respective film.
>
> However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the films/laminate ratio. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above thickness ratio as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 95

The Examiner contends as follows:

> Regarding **claim 95**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the thickness increase in each of the films A and B at the locations where the strands are present is at most 10% of the film thickness in strand-free regions.
>
> However, Lappala ('389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the thickness increase. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above thickness increase as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, ll. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

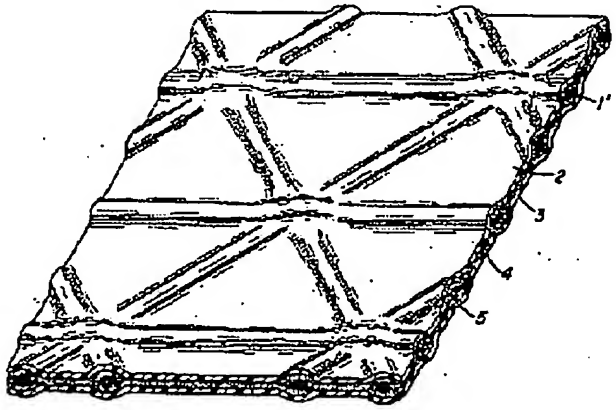
Claim 97

The Examiner contends as follows:

Regarding **claim 97**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein a laminate having a thickness at the highest of about 0.3 mm, and a film A is situated at one of its sides, with the spacing of the striations in the pattern being at most about 3 mm, the main layer and said second surface layer of said film A are substantially transparent to enable the colored strands to be visible when the laminate is observed from the A-side.

However, Lappala (389) teaches a laminate having a thickness at the highest of about 0.3 mm (col. 3, II. 34-35 and col. 2, I. 45 wherein the films are less than 0.015 in (0.381 mm)), a film A is situated at one of its sides (FIG-3, #2), with the spacing of the striations in the pattern being at most about 3 mm (FIG-3, corrugations created by strands) the main layer and the second surface layer of the film are substantially transparent to enable the coloured strands to be visible when the laminate is observed from the A-side. (col. 2, I. 7), for the purpose of providing a laminate that is light and strong (col. 1,11. 25-28).

FIG. 3



Therefore, it would have been obvious to a person of ordinary skill in the art the time of applicant's invention to provide such a spacing and configuration as taught by Lappala ('389) in Britton ('184) in order to provide a light and strong laminate.

The phrase "**said film A having its exterior surface corrugated to form a visible pattern of striations extending in one direction**" in claim 97, lines 4-5 and "**the depth of the corrugations being sufficient to impart a three-dimensional effect to said cross laminate such that the strands appear to be spaced internally from the exterior surface of said film A a distance substantially greater than the actual maximum thickness of said film A**" in claim 97, lines 10-13 are not given any patentable weight since the applicant is introducing non-structural **functional language** into the product claims (see MPEP 2173 (q)) and (See MPEP 2173.05(g)).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film

surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claim 98

The Examiner contends as follows:

> Regarding **claim 98**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the first surface layer on each of the films A and B constitutes at the highest 5% of the volume of the corresponding film.
>
> However, Lappala (389) teaches that any suitable diameter strand may be used (See col. 2, l. 45, any suitable diameter can be used), which clearly changes the volume. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to select a strand with a diameter that provides the above volume as taught by Lappala ('389) for the purpose of providing a laminate that is light and strong (col. 1, 11. 25-28).

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Lappala ('389) does nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

16. **Claims 87, 91-92 and 99** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Britton (US 4,454,184) in view of Rasmussen (US 4,039,364), Velazquez (US 5,614,297) and Cederblad et al. (US 6,204,207).

Claim 87

The Examiner contends as follows:

> Regarding **claim 87**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, and Rasmussen (364) teaches the laminate wherein each of the films A and B of the main layer is selected from HDPE, LLDPE or a blend of the two (col. 13, ll. 3-7), and the strands in the first surface layers of the films is selected from a polymer which consists essentially of a copolymer of ethylene (col. 13, ll. 11-30), however, fail to expressly disclose wherein the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80°C, the strands having a melting point or a melting range within the temperature range of 50 - 100°C.
>
> However, Velazquez ('297) teaches wherein the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80 °C (col. 8, ll. 26-47 and col. 3, l. 46) for the purpose or providing a film that can be laminated with one or more films (col. 6, ll. 13-17).
>
> Furthermore, Cederblad ('207) teaches wherein the strands have a melting point or a melting range within the temperature range of 50 - 100 °C (col. 12, l. 42 wherein the melting point is 67°C /152°F) for the purpose of forming firm bonds (col. 6, l. 63).
>
> Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a laminate with a surface layer of LLDPE and ethylene with the above melting point range and the above strands as taught by Velazquez ('297) and Cederblad ('207) in Britton ('184) to provide a laminate as described above.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Velazquez (US 5,614,297) and Cederblad et al. (US 6,204,207) do nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

Claims 91-92 and 99

The Examiner contends as follows:

> Regarding **claims 91-92 and 99**, Britton ('184) and Rasmussen (364) teach the laminate discussed above, however fail to expressly disclose wherein the average

melting point of the polymer material which constitutes the strand-formed first layer of each of the films A and B is at least about 10 °C/15 °C/20 °C lower than the average melting point of the polymer material which of the main layer.

However, Cederblad ('207) teaches wherein the average melting point of the polymer material which constitutes the strand-formed first layer of each of the films A and B is at least about 10 °C/20 °C lower than the average melting point of the polymer material which constitutes the main layer (col. 12, 11. 38-53) for the purpose of providing firm and light bonds (col. 6, 11. 60-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide strands with melting points below that of the films as taught by Cederblad ('207) in Britton ('184) in order to produce a laminate with firm and light bonds.

Applicant repeats the arguments above regarding Britton ('184) here. Again, the combination of Britton (184) and Rasmussen (364) does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*). The inclusion of Velazquez (US 5,614,297) and Cederblad et al. (US 6,204,207) do nothing to repair the deficiencies in either Britton (184), Rasmussen (364) or their combination. Therefore, the new combination also does not disclose, teach or even suggest disposing the strands on the surface of the films and bonding the films at the intersections of strands of opposing film surfaces, where the strands are angled between the films (intersection in well defined *loci*).

Therefore, Applicant respectfully requests withdrawal of this section 103(a) rejection.

ANSWERS TO APPLICANT'S ARGUMENTS

The Examiner states as follows:

17. In response to Applicant's argument (p. 21, para. 1 of Applicant's Paper filed 10 October 2006) that the basis for requiring a restriction no longer exists, it is noted that Applicant's argument is not found persuasive for the reasons of record in the Office Action dated 30 May 2006.

18. In response to Applicant's argument (p. 26, para. 2 of Applicant's Paper filed 10 October 2006) that Britton ('184) does not teach coextruded, it is noted that coextruded, coextrusion etc. are process limitations in product claims and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

19. In response to Applicant's argument (p. 26, para. 2 of Applicant's Paper filed 10 October 2006) that Britton ('184) does not teach molecular orientation, it is noted that Rasmussen ('364) teaches uniaxial or biaxial molecular orientation (col. 6, ll. 1-5) for the purpose of producing durable tarps for heavy duty applications (col. 1, 11. 16-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to either uniaxially or biaxially orient the films as taught by Rasmussen ('364) in Britton ('184) in order to provide durable tarps for heavy duty applications.

20. In response to Applicant's argument (p. 26, para. 3 of Applicant's Paper filed 10 October 2006) that the objective of Britton ('184) is quite different from Applicant's invention, it is noted that patentability of Applicant's invention is not based on the objective of Applicant's invention and how Britton's ('184) objective may or may not be different.

21. In response to Applicant's argument (p. 27, para. 2 of Applicant's Paper filed 10 October 2006) that the action of the hot probes of Britton ('184) are not precisely synchronized with the spacing, it is noted that Applicant does not claim hot probes, thus the argument is not germane to an issue at bar.

22. In response to Applicant's argument (p. 27, paras. 3-4 of Applicant's Paper filed 10 October 2006) that Lappala's ('389) strands cannot be anchored at their crossing points and does not teach coextrusion, it is noted that Lappala ('389) is not cited as teaching anchoring and furthermore, coextrusion are process limitations in product claims and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

23. In response to Applicant's argument (p. 28, para. 2 of Applicant's Paper filed 10 October 2006) that Johnston ('128) teaches fibrous products and Applicant's products are not fibrous, it is noted that patentability of Applicant's invention is not determined by additional, possible further teachings of Johnston ('128).

24. In response to Applicant's argument (p. 28, para. 3 of Applicant's Paper filed 10 October 2006) that Bonke ('966) can not teach corrugations, it is noted that Bonke ('966) is no longer used in the rejection of applicant's claims.

25. In response to Applicant's argument (p. 28, para. 4 of Applicant's Paper filed 10 October 2006) that it is difficult to comprehend how Velazquez (297) can be transposed to a totally different utility, it is noted that Velazquez ('297) teaches wherein the continuous second surface layer is formed mainly of LLDPE in admixture with 5 - 25% of a copolymer of ethylene having a melting point or a melting range within the temperature range of 50 - 80 °C (col. 8, ll. 26-47 and col. 3, l. 46) for the purpose or providing a film that can be laminated with one or more films (col. 6, ll. 13-17).

26. In response to Applicant's argument (p. 28, para. 5 of Applicant's Paper filed 10 October 2006) that Cederblad ('207) would not suggest the different melting points, it is noted that Cederblad ('207) teaches wherein the strands have a melting point or a melting range within the temperature range of 50 - 100 °C (col. 12, l. 42 wherein the melting point is 67°C/152 °F) for the purpose of forming firm bonds (col. 6, l. 63). Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a laminate with the above melting point range as taught by Velazquez ('297) in order to provide applicant's laminate.

Applicant acknowledges these statements, but note that neither the primary reference, Britton ('184), nor any of the secondary references combined therewith disclose, teach or even suggest the

laminates as currently claimed. Thus, the present claims are not obvious over any of the references alone or taken in any combination.

Having fully responded to the Examiner's Final Office Action, Applicant respectfully urges that is application be passed onto allowance.

The Commissioner is authorized to charge any claim charges or refund any overpayments associated with this response to Deposit Account 501518.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Robert W. Strozier at 713.977.7000

Date: **March 2, 2007**

Respectfully submitted,

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